The Clear Skies Act of 2003

Florida and Clear Skies

Highlights of Clear Skies in Florida

- **Florida sources would reduce emissions of SO_2 by 25%, NO_x by 68%, and mercury by 50% by 2020 due to Clear Skies.**

- **The health benefits in Florida would total $6.9 billion ($1.3 billion under an alternative estimate) and include 900 fewer premature deaths (500 under an alternative estimate) and 2,000 fewer hospitalizations/emergency room visits for asthma.**

- **In addition, Florida would receive environmental benefits including reductions in mercury deposition and reduced nitrogen deposition to coastal waters.**

- **Clear Skies does not significantly impact electricity prices. With or without Clear Skies, electricity prices in the electricity supply region that includes Florida are expected to remain near 2000 prices.**

Clear Skies: An Innovative Approach to Improving Human Health and the Environment

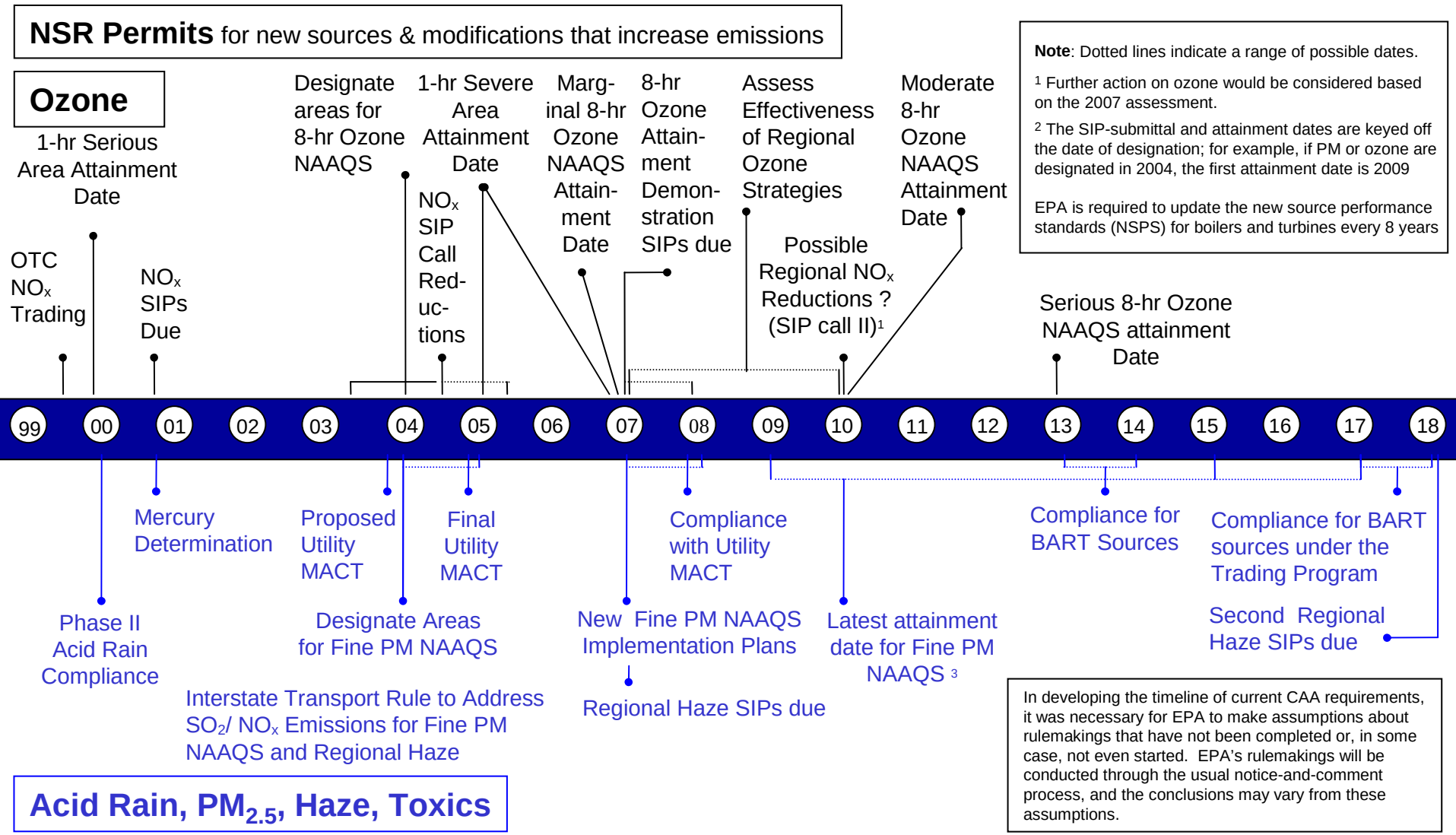
Why Clear Skies?

- **Air quality has improved, but serious concerns persist**
  - Florida's citizens suffer ill effects from air pollution, including asthma attacks and premature death
- **Electricity generation sector remains a major emissions source**
  - Very cost-effective to control the power sector, relative to other sources
  - Sources are concerned about upcoming complex and burdensome regulations

Advantages of the Clear Skies Approach

- **Guarantees significant nationwide emissions reductions – beginning years before full implementation**
  - Florida sources would substantially reduce emissions of SO_2, NO_x, and mercury
  - Delivers dramatic progress towards achievement of critical health and environmental goals
- **Uses proven, market-based flexible approach with incentives for innovation**
  - Recognizes environmental needs as well as industry constraints, allowing industry to better manage its operations and finances while lowering risks to the public
  - Sources are projected to install pollution controls to enable continued reliance on coal
- **Increases certainty across the board for industry, regulators, and consumers**

Under Current Clean Air Act Power Plants Would Face a Complex Set of Requirements



Note: Dotted lines indicate a range of possible dates.

[1] Further action on ozone would be considered based on the 2007 assessment.

[2] The SIP-submittal and attainment dates are keyed off the date of designation; for example, if PM or ozone are designated in 2004, the first attainment date is 2009

EPA is required to update the new source performance standards (NSPS) for boilers and turbines every 8 years

In developing the timeline of current CAA requirements, it was necessary for EPA to make assumptions about rulemakings that have not been completed or, in some case, not even started. EPA's rulemakings will be conducted through the usual notice-and-comment process, and the conclusions may vary from these assumptions.

Clear Skies Sets a Firm Timeline for Emission Reductions

The existing Title IV SO_2 cap-and-trade program provides an incentive and a mechanism to begin reductions upon enactment of Clear Skies years before regulatory action under the current Act.

2004: The NOx SIP call (summertime NOx cap in 19 Eastern States + D.C.) → **2004**

2008: Clear Skies NOx Phase I (2.1 million ton annual cap assigned to two Zones with trading programs) → **2008**

2008

2010: Clear Skies Hg Phase I (26 ton annual cap with a national trading program)

2010 ← **2010: SO_2 Phase I (4.5 million ton annual cap with a national trading program)**

2018: Clear Skies NOx Phase II (1.7 million ton annual cap assigned to two Zones with trading programs) → **2018**

2018: Clear Skies Hg Phase II (15 ton annual cap with a national trading program)

2018 ← **2018: Clear Skies SO_2 Phase II (3.0 million ton annual cap with a national trading program)**

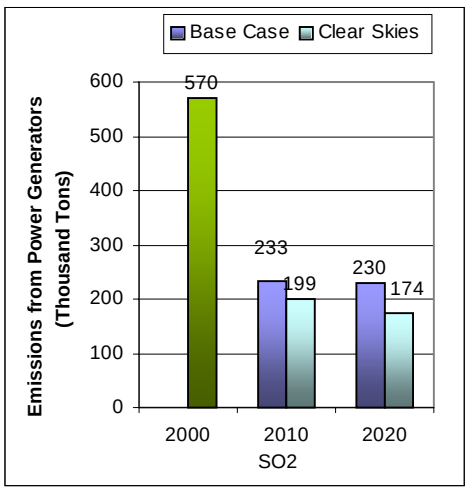
Emissions in Florida under Clear Skies

Emissions in Florida (2020) would be significantly reduced from 2000 levels:

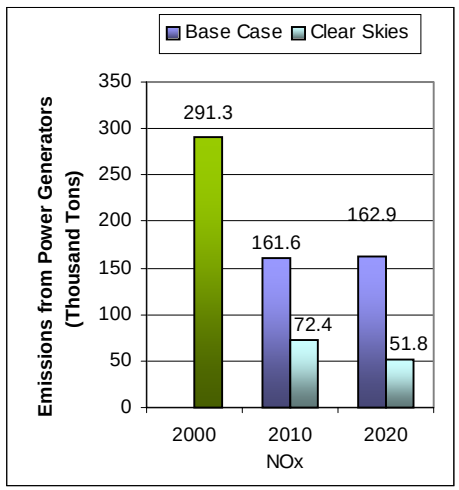
- 70% reduction in SO_2 emissions
- 82% reduction in NO_x emissions
- 56% reduction in mercury emissions

Emissions: Current (2000) and Existing Clean Air Act Regulations (base case*) vs. Clear Skies in Florida in 2010 and 2020

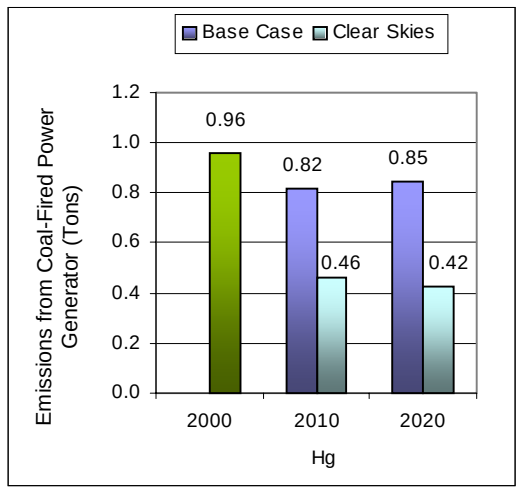
Sulfur dioxide



Nitrogen oxides



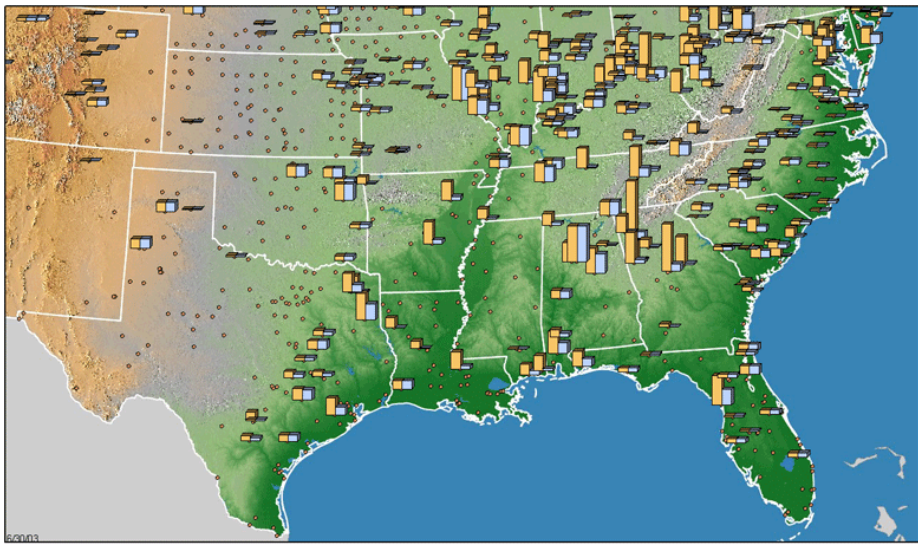
Mercury



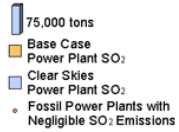
Note: The base case in IPM includes Title IV, the NO_x SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated.

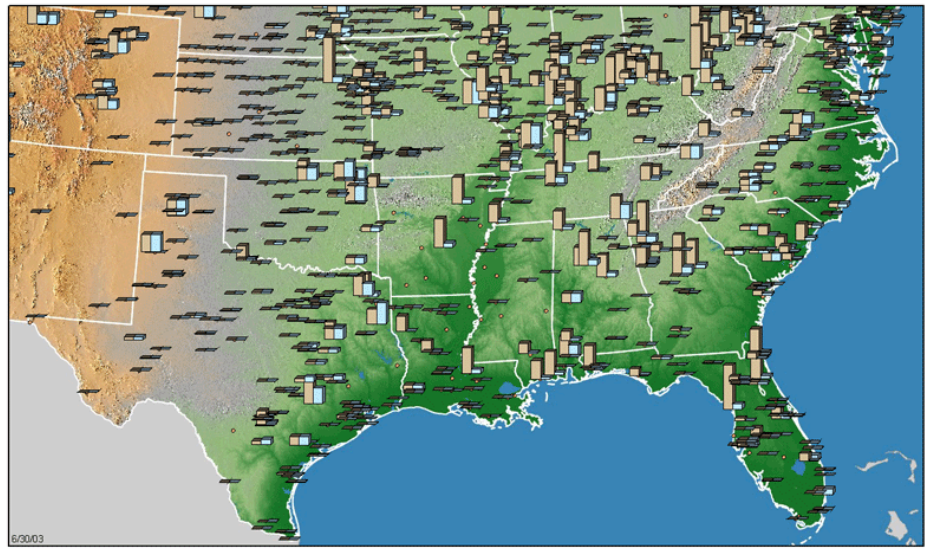
SO_2 and NO_x Emission Reductions under Clear Skies

Emissions in Florida and surrounding states would decrease considerably. These emission reductions would make it much easier for Florida to maintain compliance with the national air quality standards.

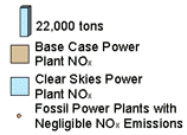


Projected SO_2 Emissions from Power Plants with the Base Case and Clear Skies (2020)
South





Projected NO_x Emissions from Power Plants with the Base Case and Clear Skies (2020)
South



Note: The base case in IPM includes Title IV, the NO_x SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated. Emissions projected for new units in 2020 are not reflected.

Clear Skies Health and Air Quality Benefits in Florida

Improve Public Health

- **Reduced ozone and fine particle exposure** by 2020 would result in public health benefits of:
  - approximately 900 fewer premature deaths each year[1]
  - approximately 500 fewer cases of chronic bronchitis each year
  - approximately 1,300 fewer non-fatal heart attacks each year
  - approximately 2,000 fewer hospital and emergency room visits each year
  - approximately 84,000 fewer days workers are out sick due to respiratory symptoms each year
  - approximately 23,000 fewer school absences each year
- **Reduced mercury emissions** would reduce exposure to mercury through consumption of contaminated fish, resulting in additional, unquantified benefits to those who eat fish from Florida's lakes, streams, and coastal waters.

By 2020, Florida would receive approximately $6.9 billion[1] in annual health benefits from reductions in fine particle and ozone concentrations alone due to Clear Skies.

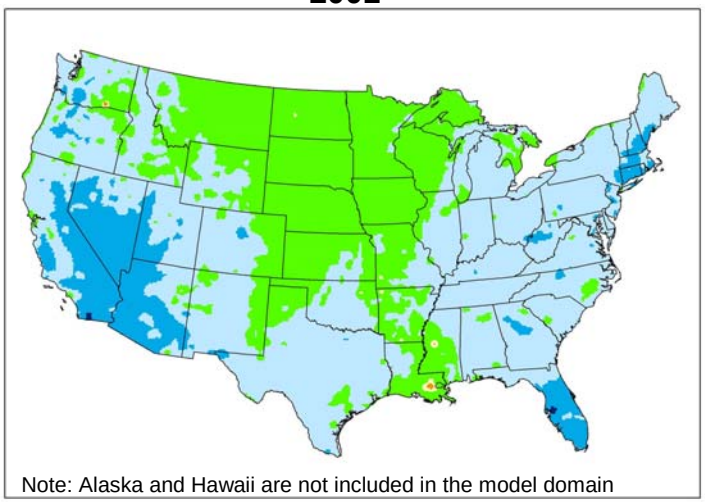
Help Maintain Health-Based Air Quality Standards[2]

- All Florida counties currently attain the annual fine particle standards; all but two currently attain the 8-hour ozone standard.
- Escambia and St. Lucie counties (population approximately 600,000) are expected to come into attainment with the 8-hour ozone standard by 2010 under existing programs.
- Clear Skies would also reduce concentrations of ozone and fine particles in other counties throughout Florida.

1. An alternative methodology for calculating health-related benefits projects approximately 500 premature deaths prevented and $1.3 billion in health benefits each year in Florida by 2020.
2. Based on 1999-2001 data of counties with monitors that have three years of complete data.

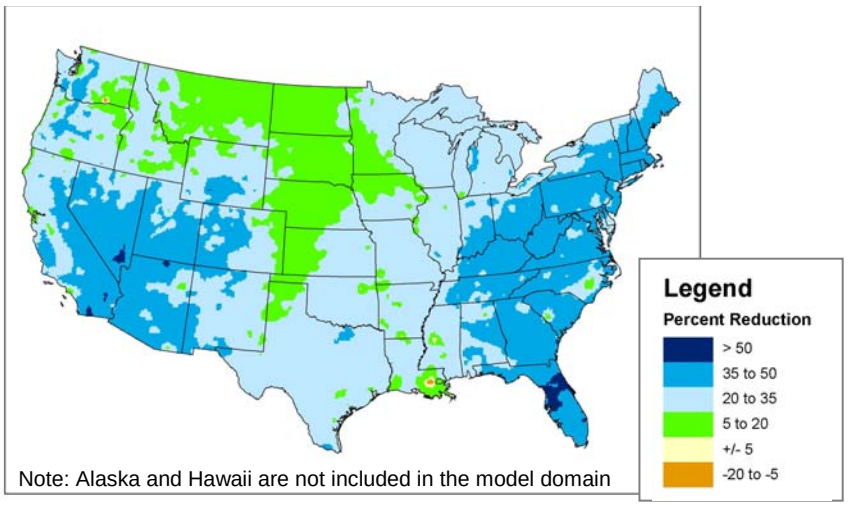
Clear Skies Environmental Benefits in Florida

Projected Changes in Nitrogen Deposition with the Base Case in 2020 Compared to 2001



Note: Alaska and Hawaii are not included in the model domain

Projected Changes in Nitrogen Deposition with Clear Skies and the Base Case in 2020 Compared to 2001



Note: Alaska and Hawaii are not included in the model domain

Clear Skies Would Provide Substantial Environmental Benefits in Florida

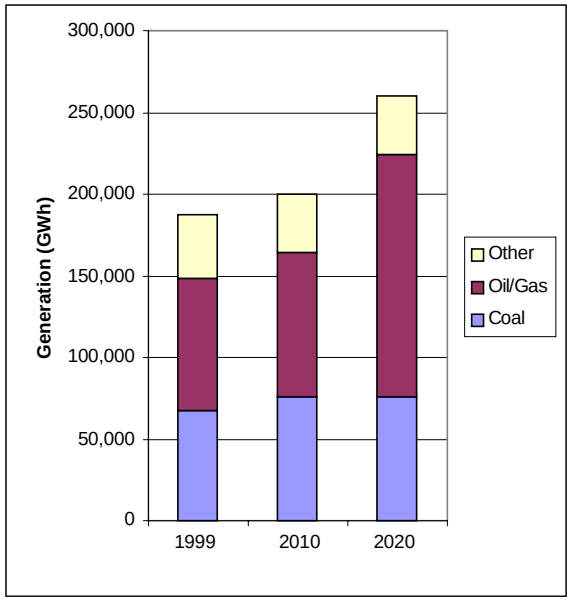
In comparison to existing programs,

- **Visibility would improve** perceptibly.
  - The value of this benefit for Florida residents visiting National Parks and Wilderness areas around the country is $230 million.
- **Sulfur deposition, a primary cause of acid rain, would decrease** 15-30% in most of the state, and up to 15% in the southeastern portion of the state.
- **Nitrogen deposition, a cause of damage in nitrogen-sensitive coastal waters, would decrease** 5-20% throughout most of Florida and more than 20% in some coastal portions of northern Florida.
- **Mercury deposition would decrease** up to 15% in some parts of northern Florida.*

* These results are based on modeling the Clear Skies mercury cap without triggering the safety valve.

Electricity Generation in Florida under Clear Skies

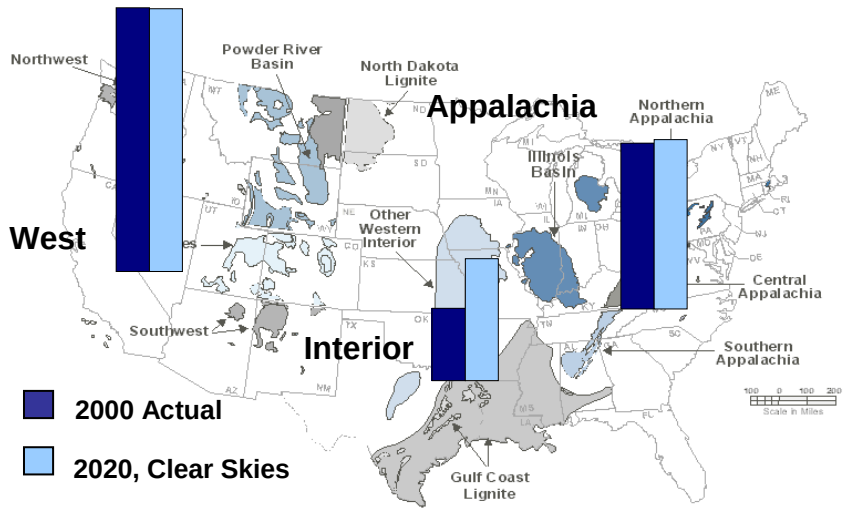
Current and Projected Generation by Fuel Type in Florida under Clear Skies (GWh)



- **Florida's electricity growth is projected to be met by increases in gas-fired and coal-fired generation. Clear Skies does not significantly alter this projection.**
  - Electricity from coal-fired generation will increase by 12% from 1999 to 2020.

- **Florida's sources are projected to reduce their emissions through the installation of emission controls, rather than through a switch from coal to natural gas.**
  - In 2010, 80% of Florida's coal-fired generation is projected to come from units with advanced SO_2 and/or NO_x control equipment that also substantially reduce mercury emissions; in 2020, the percentage is projected to increase to 94%.
  - No coal-fired units in Florida are projected to be removed from operation as a result of Clear Skies.

Current and Projected Coal Production for Electricity Generation



Scale: Appalachia 2000 = 299 million tons

Emission Controls in Florida under Clear Skies

- **Under Clear Skies by 2020...**
  - 72% of coal-fired capacity would install SCR
  - 13% would install scrubbers

- **The major generation companies in Florida include:**
  - Florida Power & Light Company
  - Tampa Electric Company
  - Jacksonville Electric Authority
  - Gulf Power Company
- **Total coal-fired capacity in Florida is projected to be 10,210 MW in 2010.**

Units in Florida Projected to Be Retrofitted Due to Clear Skies by 2020

Plant Name	Unit ID	Technology
CRYSTAL RIVER	4	Scrubber*/ SCR*
CRYSTAL RIVER	5	Scrubber*/ SCR*
C D MCINTOSH JR	3	SCR*
Cedar Bay Generating Company L P	GEN1	SCR
Central Power and Lime Incorporated	GEN1	SCR
CRIST	6	SCR*
CRIST	7	SCR*
CRYSTAL RIVER	1	SCR
CRYSTAL RIVER	2	SCR
Indiantown Cogeneration Facility	GEN1	SCR
SEMINOLE	1	SCR*
SEMINOLE	2	SCR*
SMITH	1	SCR
SMITH	2	SCR
ST JOHNS RIVER POWER	1	SCR*
ST JOHNS RIVER POWER	2	SCR*
STANTON ENERGY	1	SCR*

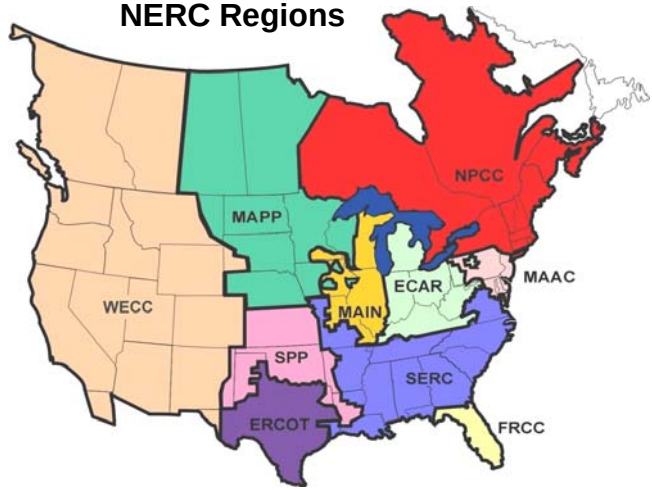
* Retrofit was installed under Clear Skies by 2010

Note: Capacity and retrofit data apply to coal and IGCC units greater than 25 MW

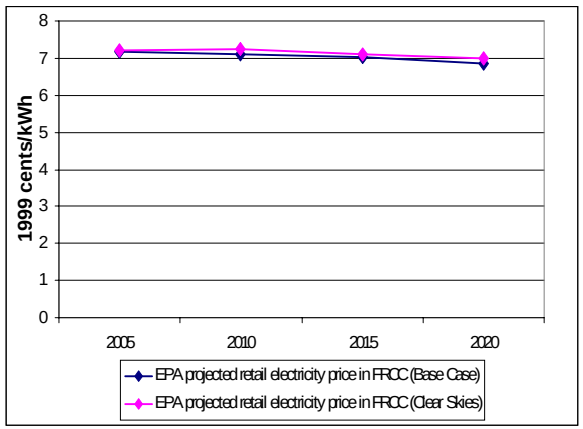
Electricity Prices in Florida under Clear Skies

- **With or without Clear Skies, retail prices in the North American Electric Reliability Council (NERC) FRCC region (the electricity supply region that contains Florida) are projected to decrease between 2005 and 2020.**
- **With Clear Skies, retail prices are projected to be approximately 0.4 – 1.8% higher between 2005 and 2020 than in the absence of the legislation.**

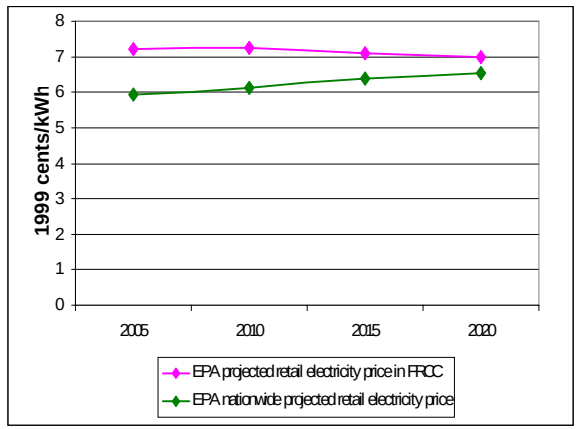
NERC Regions



Projected Retail Electricity Prices in Florida under the Base Case and Clear Skies (2005-2020)



Projected National Retail Electricity Prices and Prices in Florida under Clear Skies (2005-2020)



In 2000, the average retail electricity price in Florida was approximately 6.9 cents/kWh, which was above the average *national* retail price of approximately 6.7 cents/kWh.

Note: The base case in IPM includes Title IV, the NO_x SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated.

Costs and Benefits in Florida under Clear Skies

Benefits Outweigh the Costs

- **In Florida, Clear Skies is projected to cost approximately $320 million annually by 2020 while providing health benefits totaling approximately $6.9 billion annually.**

- **The increases in production costs under Clear Skies represent only a small percentage of total retail electricity sales revenue in Florida.**
  - Retail electricity sales revenue in Florida was over $13.5 billion in 2000.
  - Adjusting these sales revenues by the same growth rate used for the modeling of costs would result in revenues of almost $20.8 billion annually in 2020.

- **Nationwide, the projected annual costs of Clear Skies (in $1999) are $4.3 billion in 2010 and $6.3 billion in 2020; the nationwide benefits of Clear Skies are expected to be over $113 billion annually by 2020.**
  - An alternate estimate projects annual health benefits totaling $23 billion.

Clear Skies….

- **Guarantees significant emissions reductions – beginning years before full implementation**
- **Uses proven, market-based flexible approach with incentives for innovation**
- **Increases certainty across the board for industry, regulators, and consumers**

Note: Costs include capital costs, fuel, and other operation and maintenance costs (both fixed and variable) associated with the achievement of the emissions caps in the legislation (for example, the installation and operation of pollution controls). These state-level production costs are estimates; they do not account for the costs associated with the transfer of electricity across regions, nor the costs or savings that could be associated with allowance movement between sources.

Notes on EPA's Analysis

- The information presented in this analysis reflects EPA's modeling of the Clear Skies Act of 2003.
  - EPA has updated this information to reflect modifications:
    - Changes included in the Clear Skies Act of 2003.
    - Revisions to the Base Case to reflect newly promulgated rules at the state and federal level since the initial analysis was undertaken.
  - The Clear Skies modeling results presented include the safety valve feature
- This analysis compares new programs to a Base Case (Existing Control Programs), which is typical when calculating costs and benefits of Agency rulemakings.
  - The Base Case reflects implementation of current control programs only:
    - Does not include yet-to-be developed regulations such as those to implement the National Ambient Air Quality Standards.
  - The EPA Base Case for power sector modeling includes:
    - Title IV, the NO_x SIP Call, NSR settlements, and state-specific caps in Connecticut, Massachusetts, Missouri, New Hampshire, North Carolina, Texas, and Wisconsin finalized before March 2003.
  - For air quality modeling, the Base Case also includes federal and state control programs, as well as the Tier II, Heavy Duty Diesel, and Non-Road Diesel rules.

- **For more information regarding the Clear Skies Act, please visit the EPA website:**

(http://www.epa.gov/clearskies)

CLEAR SKIES
Better Health, Brighter Future